(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 22 November 2001 (22.11.2001)

PCT

(10) International Publication Number WO 01/088598 A3

- (51) International Patent Classification7: G02B 27/22, H04N 13/00
- (21) International Application Number: PCT/HU01/00057
- 18 May 2001 (18.05.2001) (22) International Filing Date:
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: P 0001974

19 May 2000 (19.05.2000) HU

P 0101027

9 March 2001 (09.03.2001)

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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

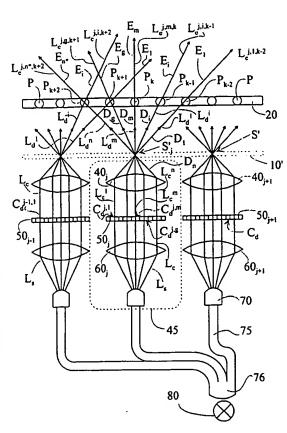
of inventorship (Rule 4.17(iv)) for US only

Published:

with international search report

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR DISPLAYING 3D IMAGES



(57) Abstract: The invention relates to a method for displaying three-dimensional images. In the method light beams (Le) are associated to several different screen points (P) of a screen (20). The light beams (Le) produce different views associated to different emission directions (E). The emission directions (E) are associated to the individual screen points (P). The light beams (Le) are generated by projecting light beams (Ld), according to the angle of the adjacent emitting directions. According to the invention, light beams (Le) without viewing direction information are generated, essentially simultaneously, with pixels (Ca) having different co-ordinates. These pixels (Cd) are pixels of a two-dimension display (50), and they are associated to different emitting directions (E) of the appropriate screen points (P). The light beams (Le) produced by the pixels (Cd) of the display (50) with different co-ordinates are imaged simultaneously in different deflection directions (D), as a function of the co-ordinates of the pixels (C_d) producing the light beams (Lc). The subject of the invention is an apparatus implementing the above method.

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(88) Date of publication of the international search report: 22 August 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

PCT/HU 01/00057

A. CLASSIF IPC 7	GOZB27/22 H04N13/00		
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	ta, EPO-Internal, PAJ	o both national classification and IPC of followed by classification symbols) attion to the extent that such documents are included in the fields searched bearch (name of data base and, where practical, search terms used) The appropriate, of the relevant passages Relevant to claim No. INT EUROP GMBH ALOGH TIBOR (HU)) 088-06) It ion INGUEZ MONTES JUAN) 1-31 INGUEZ MONTES JUAN) 17-30) INTIGUEZ MONTES JUAN) 17-31 INTIGUEZ MONTES JUAN) 17-31 INTIGUEZ MONTES JUAN) 17-31 Intiguez Montes Juan In	
C. DOCUMI	ENT'S CONSIDERED TO BE RELEVANT		
Category *	Cliation of document, with indication, where appropriate, of the relevant	vant passages	Relevant to daim No.
A	WO 98 34411 A (SONY INT EUROP GMBH; HOLOGRAFIKA (HU); BALOGH TIBOR (HO) 6 August 1998 (1998-08-06) cited in the application abstract; figures	H HU))	1-31
A	EP 1 008 887 A (DOMINGUEZ MONTES 14 June 2000 (2000-06-14) abstract; figures & WO 98 33085 A (DOMINGUEZ MONTES 30 July 1998 (1998-07-30)	1-31	
A	WO 94 23541 A (BALOGH TIBOR) 13 October 1994 (1994-10-13) cited in the application abstract; figures	-/	1-31
X Fur	ther documents are listed in the continuation of box C.	X Patent family members are listed	i in annex.
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1	e actual completion of the international search		
	13 December 2001	20/12/2001	
Name and	d malting address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswifk Tet. (+31-70) 340-2040, Tx. 31 651 epo nl,		
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INTERNATIONAL SEARCH REPORT

International Application No PCT/HU 01/00057

		PCT/HU 01/00057	
Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
A	EICHENLAUB J B ET AL: "An in cockpit situation awareness autostereoscopic avionics display" PROCEEDINGS OF THE SPIE, SPIE, BELLINGHAM, VA, US, no. 2219, 7 April 1998 (1998-04-07), pages 395-406, XP002079529 figures	1-31	
A	US 4 717 949 A (EICHENLAUB JESSE B) 5 January 1988 (1988-01-05) abstract; figures	1–31	
A	GB 2 272 597 A (SHARP KK) 18 May 1994 (1994-05-18) abstract; figure 3	1-31	
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INTERNATIONAL SEARCH REPORT

Interestional Application No PCT/HU 01/00057

	atent document I in search report		Publication date		Patent family member(s)	Publication date
WO	9834411	A	06-08-1998	HU	9700348 A1	28-12-1998
WO	3001.11	••	••••	AU	6224898 A	25-08-1998
				CA	2250968 A1	06-08-1998
				CN	1220807 A	23-06-1999
				CN	1220807 T	23-06-1999
				EΡ	0900501 A1	10-03-1999
				HU	0003613 A2	28-02-2001
				WO	9834411 A1	06-08-1998
				JP	2000509591 T	25-07-2000
				US	6201565 B1	13-03-2001
FP	1008887		14-06-2000	MO	9833085 A1	30-07-1998
٠.				EP	1008887 A1	14-06-2000
WO	9423541	Α	13-10-1994	WO	9423541 A1	13-10-1994
	• 1202 12	• • •		AT	194048 T	15-07-2000
				AU	3903293 A	24-10-1994
				DE	69328906 D1	27-07-2000
				DE	69328906 T2	01-03-2001
Part Land				EP	0693244 A1	24-01-1996
1.0° ~				JP	8511134 T	19-11-1996
				US	5801761 A	01-09-1998
US	4717949	Α	05-01-1988	EP	0316465 Al	24-05-1989
				IN	171989 A1	06-03-1993
				US	4795217 A	03-01-1989
				US	4829365 A	09-05-1989
				US	5036385 A	30-07-1991
	•			DE	3787970 D1	02-12-1993
				DE	3787970 T2	17-02-1994
GB	2272597	A	18-05-1994	NONE		